Southern Nuclear

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April 13, 2023

Docket No.: 52-026

ND-23-0301
10 CFR 52.99(c)(1)

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Unit 4
ITAAC Closure Notification on Completion of ITAAC 2.5.02.08a.ii [Index Number 540]

Ladies and Gentlemen:

In accordance with 10 CFR 52.99(c)(1), the purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of Vogtle Electric Generating Plant (VEGP) Unit 4 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 2.5.02.08a.ii [Index Number 540], for verifying the Protection and Safety Monitoring System (PMS) provides visual alerts as specified. The closure process for this ITAAC is based on the guidance described in NEI-08-01, “Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52”, which is endorsed by the NRC in Regulatory Guide 1.215.

This letter contains no new NRC regulatory commitments. Southern Nuclear Operating Company (SNC) requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact Kelli Roberts at 706-848-6991.

Respectfully submitted,

Jamie M. Coleman
Regulatory Affairs Director Vogtle 3 & 4

Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 4 ITAAC Completion of ITAAC 2.5.02.08a.ii [Index Number 540]

JMC/CWM/sfr

cc: Regional Administrator, Region ll
Director, Office of Nuclear Reactor Regulation (NRR)
Director, Vogtle Project Office NRR
Senior Resident Inspector – Vogtle 3 & 4

Southern Nuclear Operating Company
ND-23-0301
Enclosure

Vogtle Electric Generating Plant (VEGP) Unit 4
Completion of ITAAC 2.5.02.08a.ii [Index Number 540]

ITAAC Statement

Design Commitment

8.a) The PMS provides for the minimum inventory of displays, visual alerts, and fixed position controls, as identified in Table 2.5.2-5. The plant parameters listed with a "Yes" in the "Display" column and visual alerts listed with a "Yes" in the "Alert" column can be retrieved in the MCR. The fixed position controls listed with a "Yes" in the "Control" column are provided in the MCR.

Inspections/Tests/Analyses

ii) An inspection and test will be performed to verify that the plant parameters are used to generate visual alerts that identify challenges to critical safety functions.

Acceptance Criteria

ii) The plant parameters listed in Table 2.5.2-5 with a "Yes" in the "Alert" column are used to generate visual alerts that identify challenges to critical safety functions. The visual alerts actuate in accordance with their correct logic and values.

ITAAC Determination Basis

Inspection and testing were performed to verify that the Protection and Safety Monitoring System (PMS) provides visual alerts as identified in Table 2.5.2-5 (Attachment A). The inspection and testing confirmed that the plant parameters listed with a "Yes" in the "Alert" column are used to generate visual alerts that identify challenges to critical safety functions and that these visual alerts actuate in accordance with their correct logic and values.

ITAAC 2.5.02.08a.ii was completed by:

- Factory Acceptance Testing – Channel Integration Test and System Integration Test for visual alerts that identify challenges to critical safety functions.
- Site software installation and regression test – Hardware and software integration verification and testing of post system delivery changes.

The Factory Acceptance Testing (FAT) followed the guidance of NEI 08-01 (Reference 1) Section 9.4 for the as-built tests to be performed at other than the final installed location. The FAT was performed in accordance with the Software Program Manual for Common Q Systems WCAP-16096 (Reference 2), AP1000 Protection and Safety Monitoring System Test Plan (Reference 3), AP1000 Protection and Safety Monitoring System Qualified Data Processing System Channel Integration Test Procedure (Reference 4), and applicable Codes and Standards described in Vogtle 3 and 4 UFSAR Chapter 7 (Reference 11).

During the FAT, the plant parameters were simulated and adjusted to create applicable alert conditions, PMS outputs were monitored, and it was confirmed that the visual alerts actuated in accordance with their correct logic and values. This testing was performed in accordance with FAT Test Procedure APP-PMS-T1P-010 (Reference 4). The results of the PMS testing are documented in the FAT test reports APP-PMS-T2R-010 (Reference 5) and SV4-PMS-T2R-150 (Reference 6). The FAT results confirm that the PMS inputs and outputs, logic and installed software functioned correctly to provide for the visual alerts, as identified in Attachment A.

Additional hardware and software installation and associated inspections and testing were performed on-site to verify that the cabinets were intact and functional in accordance with Field Change Notifications (FCNs) AP1000 Vogtle Unit 4 PMS Software Installation - Software Release 9.0.0.1 (Reference 7) and PMS Software Installation - Software Release 9.0.0.4 (Reference 8). These FCNs were implemented by work orders listed in ITAAC Technical Report SV4-PMS-Cabinet Software Loading-001 (Reference 9), and B-GEN-ITPCI-001 (Reference 12). SV4-PMS Cabinet Software Loading-001 (Reference 9) summarizes the software loading. SV4-PMS Cabinet Diagnostic Testing -001 (Reference 13) documents the performance of diagnostic testing, using individual WOs for each cabinet, and verified the diagnostics were satisfactory for each cabinet. References 9 and 13 include steps that confirm and document successful software load and further confirm the physical properties of the as-built PMS. A regression analysis (i.e., change evaluation) was performed for software changes (Reference 10) to determine if additional testing was needed for the as-built system.

The completed Unit 4 FAT, FCNs, regression test results, and diagnostic testing confirm that PMS plant parameters listed in Attachment A with a "Yes" in the "Alert" column are used to generate visual alerts that identify challenges to critical safety functions. These results also confirm that visual alerts actuate in accordance with their correct logic and values.

References 2 through 13 are available for NRC inspection as part of the Unit 4 ITAAC 2.5.02.08a.ii Completion Package (Reference 14).

ITAAC Finding Review

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all findings pertaining to the subject ITAAC and associated corrective actions. This review found there were no relevant findings associated with this ITAAC. The review is documented in the ITAAC 2.5.02.08a.ii Completion Package (Reference 14) and is available for NRC review.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.5.02.08a.ii was performed for VEGP Unit 4 and that the prescribed acceptance criteria were met.

Systems, structures, and components verified as part of this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

References (available for NRC inspection)

1. NEI 08-01, Rev 5 – Corrected, “Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52”
2. WCAP-16096 “Software Program Manual for Common Q Systems” Revision 4A
3. APP-PMS-T5-001, Rev. 5, “AP1000 Protection and Safety Monitoring System Test Plan”
4. APP-PMS-T1P-010, Rev. 5, “AP1000 Protection and Safety Monitoring System Qualified Data Processing System Channel Integration Test Procedure”
5. APP-PMS-T2R-010, Rev 0 “AP1000 Protection and Safety Monitoring System Qualified Data Processing System Channel Integration Test Report”
6. SV4-PMS-T2R-150-R0 “AP1000 Protection and Safety Monitoring System Integration Test Integrated System Validation Test Report”
7. SV4-GW-GCW-740, “AP1000 Vogtle 4 PMS Software Installation - Software Release 9.0.0.1”
8. SV4-GW-GCW-848, “AP1000 Vogtle 4 PMS Software Installation - Software Release 9.0.0.4”
9. SV4-PMS Cabinet Software Loading-001, Rev 0, “Unit 4 Software Loading for PMS Cabinets for Multiple ITAACs: ITAAC 2.1.02.11a.ii [NRC Index No. 47], ITAAC 2.5.02.06a.ii [NRC Index No. 530], ITAAC 2.5.02.08a.ii [NRC Index No. 540], ITAAC 2.5.02.08b.ii [NRC Index No. 543], ITAAC 2.5.02.09d [NRC Index No. 548], ITAAC 2.5.04.02.i [NRC Index No. 557]”
10. SV4-PMS-T2R-050, Rev 1, “Vogtle AP1000 Protection and Safety Monitoring System Fuel Load Regression Test Report”
11. Vogtle Electric Generating Plant (VEGP) Units 3 and 4 Updated Final Safety Analysis Report (UFSAR), Revision 11.2
12. B-GEN-ITPCI-001, Rev. 4, “PMS CABINETS”
13. SV4-PMS Cabinet Diagnostic Testing-001, Rev 0, “Unit 4 PMS Cabinet Diagnostic Testing for Multiple ITAACs: ITAAC 2.5.02.06a.ii [NRC Index No. 530], ITAAC 2.5.02.08a.ii [NRC Index No. 540], ITAAC 2.5.02.08b.ii [NRC Index No. 543], ITAAC 2.5.02.09d [NRC Index No. 548], ITAAC 2.5.04.02.i [NRC Index No. 557]”
14. ITAAC 2.5.02.08a.ii-U4-CP-Rev0, ITAAC Completion Package

Attachment A

*** Excerpt from COL Appendix C Table 2.5.2-5**

*Description	*Alert(1)
Neutron Flux	Yes
Neutron Flux Doubling	Yes
Startup Rate	Yes
Reactor Coolant System (RCS) Pressure	Yes
Wide-range Cold Leg Temperature	Yes
RCS Cooldown Rate Compared to the Limit Based on RCS Pressure	Yes
Wide-range Cold Leg Temperature Compared to the Limit Based on RCS Pressure	Yes
Change of RCS Temperature by more than 5°F in the last 10 minutes	Yes
Containment Water Level	Yes
Containment Pressure	Yes
Pressurizer Water Level	Yes
Reactor Vessel-Hot Leg Water Level	Yes
Core Exit Temperature	Yes

1. These parameters are used to generate visual alerts that identify challenges to the critical safety functions. For the main control room, the visual alerts are embedded in the safety-related displays as visual signals.

Attachment A (continued)

*Description	*Alert[1]
RCS Subcooling	Yes
RCS Cold Overpressure Limit	Yes
IRWST Water Level	Yes
PRHR Flow	Yes
PRHR HX Outlet Temperature	Yes
PRHR HX Inlet Isolation and Control Valve Status	Yes
IRWST to Normal Residual Heat Removal System (RNS) Suction Valve Status	Yes
Containment Area High-range Radiation Level	Yes

1. These parameters are used to generate visual alerts that identify challenges to the critical safety functions. For the main control room, the visual alerts are embedded in the safety-related displays as visual signals.